

VS Id#	Vital Sign Category			Vital Sign	Network Rank	PUHO
F4	Freshwater Ecosystems	Consumers	Population	Amphidromous Fauna Size-Age Structure, Reproduction and Recruitment	2.1	
H10	Park Use & Activities			Subsistence Farming/Agriculture	1.2	
H11	Park Use & Activities			Bio-prospecting Harvest	1.9	
H12	Park Use & Activities			Coral/Sand Mining Harvest	1.2	
H17	Management Zones			Wilderness Areas - HAVO, HALE, other Unofficial	1.1	
M01	Marine Ecosystems	Benthic	Landscape	Coral Growth (erosion & accretion)	2.7	
M02	Marine Ecosystems	Benthic	Landscape	Benthic Habitats	2.6	
M03	Marine Ecosystems	Benthic	Community	Benthic Marine Invertebrates and Algae Biodiversity	2.8	
M04	Marine Ecosystems	Benthic	Community	Subtidal - Hard Bottom (coral reef, colonized basalt, etc.)	2.7	
M05	Marine Ecosystems	Benthic	Community	Subtidal - Soft Bottom (sand flat, seagrass bed)	2.4	
M06	Marine Ecosystems	Benthic	Population	Benthic Reef Fisheries / Collected species (inverts: sea cucumbers, pololo worm, corals; etc)	2.7	
M07	Marine Ecosystems	Benthic	Population	Benthic Marine Invertebrates and Algae	2.7	
M08	Marine Ecosystems	Benthic	Population	Coral Growth/Size and Age Structure, and Recruitment	2.6	
M09	Marine Ecosystems	Benthic	Population	Established Coral Disease & Pathogens (including bleaching)	2.4	
M10	Marine Ecosystems	Benthic	Population	Alien Incipient Coral Disease & Pathogens	2.5	
M11	Marine Ecosystems	Benthic	Population	Established Alien Species - Benthic Marine	2.7	
M12	Marine Ecosystems	Benthic	Population	Alien Incipient Invasives - Benthic Marine	2.8	
M14	Marine Ecosystems	Water column (motile)	Population	Water Column Reef Fisheries	2.2	
M15	Marine Ecosystems	Water column (motile)	Population	Established Marine Animal (other than turtles) Disease & Pathogens	1.9	
M28	Marine Ecosystems	Intertidal	Population	Alien Incipient Invasives - Intertidal Marine	2.6	
P16	Soil, Water, & Nutrient Dynamics			Soil Crust Change (Arid-Semiarid habitats)	0.9	
P32	Water Quality			Marine Water Quality - macroinvertebrates	2.8	
P35	Geology	Hazards		Volcanic Unrest - Lava Flows	1.2	
P36	Geology	Hazards		Seismicity of Non-Volcanic Origin	1.9	
P40	Geology	Landforms		Dune Change (erosion & accretion)	0.9	
P41	Geology	Landforms		Permafrost on Big Island summits	0.0	
P42	Geology	Landforms		Cave Environmental conditions	2.0	
P44	Geology	Landforms		Cave Geology: karst	0.9	
T24	Terrestrial Ecosystems	Consumers	Population	Herps (native)	1.7	
F5	Freshwater Ecosystems	Consumers	Population	Established Alien Species - Predatory Freshwater (vertebrate and invertebrate)	2.9	4.8
T06	Terrestrial Ecosystems	Vegetation	Community	Terrestrial Plant Biodiversity	3.6	4.8
T16	Terrestrial Ecosystems	Vegetation	Population	Established Alien Species - Plants	4.0	4.8
T21	Terrestrial Ecosystems	Consumers	Community	Recovery/change of Native Wildlife and habitats (including wetlands) with restoration of native vegetation	3.2	4.8
T26	Terrestrial Ecosystems	Consumers	Population	Seabirds (including T & E spp.)	3.5	4.8
T29	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrate Species Protection (T, E, S-o-C Species)	2.9	4.8
P20	Water Quality			Ground Water Quality Core parameters	2.8	4.7
T13	Terrestrial Ecosystems	Vegetation	Population	Native Plant Species Protection (T, E, S-o-C species)	4.0	4.7
T08	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Alien Plant Control	3.5	4.6
T23	Terrestrial Ecosystems	Consumers	Population	Forest Birds and Bats (includes T & E spp.)	3.1	4.5
T25	Terrestrial Ecosystems	Consumers	Population	Invertebrate Charismatic or Species of Concern	3.2	4.5
T27	Terrestrial Ecosystems	Consumers	Population	Shorebirds and Waterbirds (including T & E spp.)	3.3	4.5
P39	Geology	Landforms		Coastal Shoreline Change (erosion & accretion)	3.2	4.4
M20	Marine Ecosystems	Water column (motile)	Population	Marine Species Protection (T, E, S-o-C species)	3.3	4.2
P22	Water Quality			Surface Water Quality Core parameters	3.6	4.2
P25	Water Quality			Surface Water Quality Supplemental parameters	3.5	4.2
P31	Water Quality			Surface Water Quality - Toxics & contaminants	3.7	4.2
F2	Freshwater Ecosystems	Consumers	Community	Aquatic and Riparian Species (vertebrate and invertebrate) Biodiversity	3.5	4.1
P29	Water Quality			Ground Water Quality - Toxics & contaminants	2.8	4.1
M16	Marine Ecosystems	Water column (motile)	Population	Established Turtle Disease & Pathogens	2.9	4.1
M17	Marine Ecosystems	Water column (motile)	Population	Established Alien Species - Water Column Marine	2.5	4.0
T17	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Invasive Plants	3.7	4.0
T19	Terrestrial Ecosystems	Consumers	Community	Terrestrial Vertebrate (including off-shore islets refugia) Biodiversity	3.3	3.9
T36	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (human structures)	1.9	3.9
M26	Marine Ecosystems	Intertidal	Population	Intertidal Marine Invertebrates, Fish, and Algae	3.0	3.8
T35	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (agricultural)	1.8	3.8
M25	Marine Ecosystems	Intertidal	Population	Intertidal Reef Fisheries / Collected species (limu, opihio, crabs, fish, etc.)	2.3	3.7
T01	Terrestrial Ecosystems	Vegetation	Landscape	Soil and Pollen Landscape History	2.3	3.6
P23	Water Quality			Ground Water Quality Supplemental parameters	2.6	3.6
P10	Soil, Water, & Nutrient Dynamics			Ocean/Physical Dynamics: Currents, Sea Level, Tides/Swell	2.7	3.5
H04	Land Use			Alien Invasive Species Points of Entry	3.4	3.5
P08	Climate & Air Quality			Extreme events (weather & ocean)	3.0	3.4
T07	Terrestrial Ecosystems	Vegetation	Community	Long-term Plant Succession	3.5	3.4
M23	Marine Ecosystems	Intertidal	Community	Intertidal - Hard Bottom	2.2	3.3
M24	Marine Ecosystems	Intertidal	Community	Intertidal - Soft Bottom (sand beach, mudflat, mangrove)	2.6	3.3
T18	Terrestrial Ecosystems	Consumers	Community	Terrestrial Invertebrate Biodiversity	2.9	3.3
P43	Geology	Landforms		Cave Geology: non-karst	2.2	3.2
H06	Land Use			Land Use(s) Within & Surrounding Parks	3.4	3.2
H13	Park Use & Activities			Culturally Significant Plant Harvest	2.5	3.2
M22	Marine Ecosystems	Intertidal	Community	Intertidal Biodiversity - Vertebrates, Invertebrates, and Algae	3.1	3.2
T34	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Predatory Terrestrial Vertebrates	3.4	3.2
P03	Climate & Air Quality			Atmospheric Gases: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	3.1
T28	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrates Associated with Habitat Quality	2.7	3.1
P07	Climate & Air Quality			Weather & Climate	3.4	2.9
T40	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Vertebrates	2.6	2.9
H01	Soundscapes			Alien, Natural, Human Soundscapes	2.6	2.8
F6	Freshwater Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Freshwater (vertebrate and invertebrate)	2.8	2.7
T04	Terrestrial Ecosystems	Vegetation	Landscape	Fire Effects & Dynamics: Vegetation and Landscape Level	2.5	2.6
T14	Terrestrial Ecosystems	Vegetation	Population	Established Plant Disease & Pathogens	2.9	2.6
P17	Soil, Water, & Nutrient Dynamics			Flowing surface water hydrology	2.7	2.5
H09	Park Use & Activities			Footprint & Visitor Use Patterns	3.3	2.5
P01	Climate & Air Quality			Visibility	2.9	2.4
P18	Soil, Water, & Nutrient Dynamics			Wetlands (incl. anchialine pools) hydrology	3.2	2.4
T33	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Invasive Terrestrial Invertebrate Pests of natural systems	2.4	2.4
H03	Viewscapes / Lightscapes			Lightscape & Night sky	2.7	2.3
H07	Park Use & Activities			Litter/debris	3.1	2.3
H05	Land Use			Water Use(s) Within & Surrounding Parks	3.0	2.2
P02	Climate & Air Quality			Atmospheric Deposition: Wet (direct & occult) and Dry	2.1	2.1
P12	Soil, Water, & Nutrient Dynamics			Soil Erosion	2.9	2.0
P05	Climate & Air Quality			Atmospheric Particulates: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	2.0
T10	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Invasive Alien Invertebrate Control	1.8	2.0
H16	Management Zones			Management Zone uses	3.1	1.9
P09	Climate & Air Quality			Climate Representations - 2- & 3- dimensional	1.7	1.9
P11	Soil, Water, & Nutrient Dynamics			Biogeochemical Cycles - Nutrient Cycling	2.5	1.9
T20	Terrestrial Ecosystems	Consumers	Community	Recovery/Change of Native Invertebrates Communities with Native Plant Restoration	2.5	1.9
M18	Marine Ecosystems	Water column (motile)	Population	Water Column Marine Invertebrates	2.8	1.9
P28	Water Quality			Surface Water Quality - Microbiology	2.9	1.9
M19	Marine Ecosystems	Water column (motile)	Population	Fish Growth/Size and Age Structure, and Recruitment	3.2	1.8

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P15	Soil, Water, & Nutrient Dynamics			Soil Quality- Physical	2.3	1.8
P19	Soil, Water, & Nutrient Dynamics			Groundwater dynamics	2.4	1.7
P26	Water Quality			Ground Water Quality - Microbiology	2.9	1.6
T30	Terrestrial Ecosystems	Consumers	Population	Established Disease & Pathogens of Terrestrial Vertebrates	2.5	1.5
T41	Terrestrial Ecosystems	Cave Systems	Community	Cave & lava tube communities	2.0	1.4
P30	Water Quality			Marine Water Quality - Toxics & contaminants	3.0	1.3
T02	Terrestrial Ecosystems	Vegetation	Landscape	Ecozone Boundaries	2.1	1.3
T03	Terrestrial Ecosystems	Vegetation	Landscape	Landscape Fragments, Patch Size, Land Cover	2.6	1.3
T09	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Feral Ungulate Control	2.4	1.3
P14	Soil, Water, & Nutrient Dynamics			Soil Quality- Chemical	1.9	1.2
F1	Freshwater Ecosystems	Producers		Community dynamics of primary producers	2.5	1.1
F3	Freshwater Ecosystems	Consumers	Population	Freshwater Animals Disease & Pathogen	2.2	1.1
P37	Geology	Hazards		Seismicity of Volcanic Origin	1.8	1.1
T12	Terrestrial Ecosystems	Vegetation	Population	Plant Pathogen Biocontrol of Plants	1.6	1.1
T15	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Plant Disease & Pathogens	2.6	1.1
T22	Terrestrial Ecosystems	Consumers	Population	Invertebrate Biocontrol of Invertebrates	1.7	1.1
M13	Marine Ecosystems	Water column (motile)	Community	Water Column Marine Vertebrates and Invertebrates Biodiversity	2.8	1.1
P06	Climate & Air Quality			Solar radiation	2.7	1.1
T32	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Feral Ungulates	2.4	1.1
P24	Water Quality			Marine Water Quality Supplemental parameters	2.9	1.0
P27	Water Quality			Marine Water Quality - Microbiology	2.8	1.0
T31	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Disease & Pathogens of Terrestrial Vertebrates	2.5	1.0
T37	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Terrestrial Vertebrate	3.3	1.0
P33	Water Quality			Surface Water Quality - macroinvertebrates	2.6	1.0
T38	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Fungi	2.0	1.0
H02	Viewscapes / Lightscapes			Viewsheds	2.7	0.9
P13	Soil, Water, & Nutrient Dynamics			Soil Quality - Biological	1.7	0.9
P04	Climate & Air Quality			Marine Aerosols	1.4	0.8
P21	Water Quality			Marine Water Quality Core parameters	3.3	0.8
P34	Geology	Hazards		Volcanic Unrest - Ground Deformation	1.4	0.8
T05	Terrestrial Ecosystems	Vegetation	Landscape	Forest Dieback	1.5	0.8
T11	Terrestrial Ecosystems	Vegetation	Population	Invertebrate Biocontrol of Plants	1.7	0.8
M21	Marine Ecosystems	Water column (motile)	Population	Alien Incipient Invasives - Water Column Marine	2.1	0.8
H08	Park Use & Activities			Marine Recreational Activities & Groundings/Anchor Damage	2.5	0.6
P38	Geology	Hazards		Mass Geologic Wasting	1.6	0.4
H15	Park Use & Activities			Reef Fisheries Harvest	2.6	0.3
T39	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Terrestrial Invertebrates	2.2	0.3
H14	Park Use & Activities			Culturally Significant Vertebrate Species Harvest	1.6	0.2
M27	Marine Ecosystems	Intertidal	Population	Established Alien Species - Intertidal Marine	2.5	0.0